

METHODS OF PRODUCING AND POLISHING SEMICONDUCTOR DEVICE  
AND POLISHING APPARATUS

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ABSTRACT OF THE DISCLOSURE

A method of production and a method of polishing a semiconductor device and a polishing apparatus, capable of easily flattening an initial unevenness of a metal  
10 film, excellent in efficiency of removal of an excess metal film, and capable of suppressing damage to an interlayer insulation film below the metal film when flattening the metal film by polishing, the polishing method including the steps of interposing an electrolytic  
15 solution including a chelating agent between a cathode member and the copper film, applying a voltage between the cathode member used as a cathode and the copper film used as an anode to oxidize the surface of the copper film and forming a chelate film of the oxidized copper,  
20 selectively removing a projecting portion of the chelate film corresponding to the shape of the copper film to expose the projecting portion of the copper film at its surface, and repeating the above chelate film forming step and the above chelate film removing step until the  
25 projecting portion of the copper film is flattened.